

REMARKS

Applicant thanks the Examiner for acknowledging Applicant's claim to foreign priority under 35 U.S.C. § 119(a)-(d), and for confirming that the certified copy of the priority document has been received at the Patent Office.

Information Disclosure Statement:

Applicant also thanks the Examiner for initialing and returning the Forms PTO-1449 filed on August 5, 2002 and November 19, 2002, thus indicating that all of the references listed thereon have been considered.

Election/Restriction:

Applicant thanks the Examiner for acknowledging Applicant's election of claims 1-18, 45 and 82-83 without traverse.

The Examiner has indicated that the Examiner has withdrawn claims 19-81 from further consideration. Applicant notes that the inclusion of claim 45 within the withdrawn claims appears to be a typographical error, as claim 45 has been elected by the Applicant.

With regard to claim 83, Applicant acknowledges the Examiner's inclusion of claim 83 in Group 3, and confirms the election without traverse. Applicant notes that claim 83 has been cancelled without prejudice or disclaimer.

Claim Rejections:

Claims 1-18, 45, 82 and 83 are all of the claims pending in the present application (claims 19-44 and 46-81 have been cancelled), and claims 1-18, 45 and 82 are the claims that have been examined. All of the examined claims stand rejected.

35 U.S.C. § 112, 2nd Paragraph Rejection - Claims 8-16 and 45-82:

Claims 8-16 and 45-82 have been rejected under 35 U.S.C. § 112, 2nd paragraph as being indefinite.

As an initial matter, Applicant notes that the Examiner's rejection of claims 45-82 appears to be an error as claims 46-81 have been cancelled. *See* Applicant's Preliminary Amendment dated March 4, 2003. Further, Applicant notes that the Examiner has made comments regarding claim 19, which has also been cancelled in the March 4, 2003 Preliminary Amendment. Therefore, Applicant submits that the Examiner's rejection of these claims is moot.

With regard to claim 8, the Examiner has indicated that this claim is indefinite for a number of informalities. Applicant has amended claims 1, 4, 5, 7-13, 15-17, 45 and 82 as shown in the attached Appendix. Applicant submits that the amendments to claim 8 addresses the Examiner's concerns and hereby requests the Examiner reconsider and withdraw the above 35 U.S.C. § 112 rejection of this claim.

Further, Applicant notes that the above referenced claim amendments have been made to merely clarify the claimed invention and are not intended to narrow the original scope or spirit of the claims in any way.

35 U.S.C. § 102(a) Rejection - Claims 1-16 and 45:

Claims 1-16 and 45 stand rejected under 35 U.S.C. § 102(a) as being anticipated by EPO Patent No. 0 965 451 to Junya. For the following reasons, Applicant respectfully disagrees.

Applicant submits that Junya discloses a printing system which has a plurality of tanks **134K, Y, M and C**, and a plurality of sub-ink containers **50K, Y, M and C**. *See* Figure 10. However, Junya does not disclose having a plurality of sub-ink containers **50** connected to at least one main tank (**134**), as in the present invention. Specifically, Applicant notes that only one sub-ink container **50** is connected to each of the tanks **134**, while in the present invention there is a plurality of sub tanks connected to a main tank. *See e.g.* claim 1.

Applicant does note the disclosure set forth in Figure 10, of Junya. In this Figure, each of the sub-ink containers **50K, C, Y and M** appear to be coupled to each of the tanks **134K, C, Y and M**. However, Applicant notes that this coupling is through manifold lines which connect the switching valve **49** to each of the tanks. This manifold provides air pressure from the pump **44**, and is not used for the transfer of ink. In fact, Applicant notes that the Figure 10 manifold lines can not be used as ink flow passages as it would permit a plurality of colors (in tanks **K, Y, M, C**) to be mixed with each other.

Therefore, Applicant respectfully submits that there is no disclosure of having a plurality of sub tanks coupled to a main tank, where each sub tank stores ink from the main tank. For at least this reason Applicant notes that Junya fails to disclose each and every feature of the present invention, as set forth in at least claims. In Junya, only one sub tank **50** stores ink from each main tank **100**.

With regard to claim 45, Applicant notes that Junya suffers from a similar defect in that although there are a plurality of recording heads **1K, Y, C, and M** (*see* Figure 1), they are not

connected to a single main tank, and there is no system monitoring the amount of ink used by each recording head to determine the ink remaining in the tank.

In view of the foregoing discussions, Applicant submits that Junya fails to disclose each and every feature of the present invention as set forth in claims 1 and 45, and hereby requests the Examiner reconsider and withdraw the above 35 U.S.C. § 102(a) rejection of these claims. Further, as claims 2-16 depend on claim 1, Applicant submits that these claims are also allowable, at least by reason of their dependence.

35 U.S.C. § 103(a) Rejection - Claims 17 and 18:

Claims 17 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Junya in view of U.S. Patent No. 5,221,935 to Uzita. However, because Uzita fails to cure the deficient teachings of Junya with respect to claim 1, Applicant submits that these claims are also allowable, at least by reason of their dependence.

35 U.S.C. § 103(a) Rejection - Claim 82:

Claim 82 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Junya in view of U.S. Patent No. 6,151,039 to Hmelar et al. However, because Hmelar fails to cure the deficient teachings of Junya with respect to claim 45, Applicant submits that this claim is also allowable, at least by reason of its dependence.

Conclusion:

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

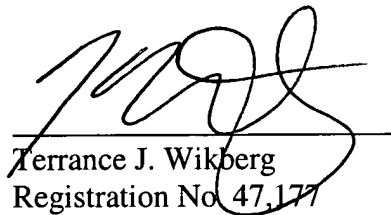
AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No.: 10/068,008

Our Ref.: Q68459
Art Unit: 2861

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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Date: June 13, 2003

APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claim 83 has been cancelled without prejudice or disclaimer.

The claims are amended as follows:

1. (Amended) An ink jet recording apparatus, comprising:

 at least one main tank, which stores ink therein; and

 a plurality of sub tanks, communicated with ~~each~~ said at least one main tank, each
sub tank storing ink supplied from ~~the~~ said at least one main tank, and being
communicated with at least one recording head.

4. (Amended) The ink jet recording apparatus as set forth in claim 1, wherein ~~each~~ at
least one of said sub tanks is airtightly formed by a material having flexibility so that a
volume of ~~the~~ said at least one sub tank is variable.

5. (Amended) The ink jet recording apparatus as set forth in claim 1, further comprising:

 a first ink amount detector, which detects an ink amount stored in ~~each~~ at least
one of said sub tanks; and

 a first supply amount controller, which controls a supply amount of ink flowing
into ~~each~~ said at least one sub tank, based on ~~the~~ a detection of the first ink amount
detector.

7. (Amended) The ink jet recording apparatus as set forth in claim 6, wherein:

the first valve member is opened when the first ink amount detector detects an ink low state in which the ink amount stored in the at least one subtank is at a first predetermined level or less; and

the first valve member is closed when the first ink amount detector detects an ink full state in which the ink amount stored in the at least one subtank is at a second predetermined level or more.

8. (Amended) The ink jet recording apparatus as set forth in claim 1, wherein ~~the~~ at least one of said subtanks is communicated with a plurality of recording heads.

9. (Amended) The ink jet recording apparatus as set forth in claim 1, wherein the at least one main tank and the subtanks are arranged so as to provide a head difference therebetween, to supply ink from the at least one main tank to the subtanks.

10. (Amended) The ink jet recording apparatus as set forth in claim 1, wherein the at least one main tank is compressed to supply ink to the subtanks.

11. (Amended) The ink jet recording apparatus as set forth in claim 10, wherein the at least one main tank is compressed by a pump member.

12. (Amended) The ink jet recording apparatus as set forth in claim 11, wherein the pump member is connected to the at least one main tank via an air releaser which opens the at least one main tank to an atmosphere.

13. (Amended) The ink jet recording apparatus as set forth in claim 6, further comprising a second supply amount controller, which controls a supply amount of ink flowing out of the at least one main tank.

15. (Amended) The ink jet recording apparatus as set forth in claim 14, wherein the second valve member is first opened while the at least one main tank is compressed, and then the first valve member is opened to supply ink to the at least one subtank.

16. (Amended) The ink jet recording apparatus as set forth in claim 14, wherein the first valve member is first closed and the compressing of the at least one main tank is canceled when the at least one subtank is replenished, and the second valve member is then closed.

17. (Amended) The ink jet recording apparatus as set forth in claim 4, wherein each subtank contains a plate member which prevents inner surfaces of the respective subtank_s from being adhered with each other.

45. (Amended) An ink supply system, comprising:

- at least one main tank, which stores ink therein;
- a plurality of recording heads, communicated with ~~each~~ at least one main tank while providing a head difference therebetween; and
- a system controller, which monitors an ink amount consumed in each recording head to manage a residual ink amount in the at least one main tank.

82. (Amended) The ink supply system as set forth in claim 45, further comprising a memory for storing a residual ink amount in the at least one main tank.